LogStick

Temperature and humidity Data-Logger

User Manual

Rev1.1 May, 2008

As for this product, building in the equipment related to the life, equipment that needs the container machine and high reliability and safety, and the container machine (medical, aerospace relation, transportation relation, and nuclear power relation, etc.) etc. are not considered. Even if the accident resulting in injury or death and the property damage occur by having used this product with these equipment and container machine, our company doesn't assume the responsibility at all.

Attention on safety Please guard.

Please read this "Attention on safety" well and use it ahead of the use correctly.

¦ It divides by displaying ⚠warning and ⚠attention and it explains danger and the extent caused when wrong handling is done.

⚠ **Warning** The one with possibility of relating to important results such as deaths and serious injuries when wrong handling is done

Use prohibition	**Do not pull out and do not use the battery when abnormality occurs by any chance.** It causes a fire and the electric shock when abnormally using it. Please pull out the battery from the main body, and request the repair at once.
	Smoke has risen, and it doesn't use t when it is abnormal of smelling to strangeness etc. It causes a fire and the electric shock when abnormally using it. It moves to the place that doesn't spread to surroundings, and please pull out the battery from the main body after confirming safety, and request the repair at once.
	Do not use it when damaging it. It causes a fire and the electric shock.
Remodeling prohibition	**Do not resolve, and remodel it.** It causes a fire and the electric shock by the short and generation of heat.
Prohibition	**Do not use it outside the purpose.** Do not use it in the usages other than the measurement of the temperature and humidity.
	Do not put the foreign body. When metals and the combustible one, etc. enter the inside, it causes a fire and the electric shock.
	Do not put it on the place where child's hand reaches. Please do not set it up in the place where child's hand reaches in the measurement place etc.It swallows, and it causes the injury.
Water wet prohibition	**Do not wet it with water.** It causes a fire and the electric shock. Please note use in outdoor and near the window in rain, the snow inside, and the coast and the waterside, etc. especially.
Correct battery	**Use a specified battery.** When a correct battery is not used, it causes a fire, the electric shock, and the breakdown.

⚠ **Attention** The one related to damage of injury or house and household goods, etc. when wrong handling is done

Installation prohibition	**Do not put it on the following places when you set it up.** ?Place where lamp soot and steam are hit directly ? Place where sunlight strikes directly ? As for the temperature and humidity outside the specification The transformation of the short, generation of heat, and the case etc. might be caused when putting it on such a place, and it cause a fire, the electric shock, and the breakdown. The range that this machine can use is a temperature: -20-70℃ and humidity: It becomes 5-90%RH.
Prohibition	**Not putting the heavy one on main body, and up field** The balance collapses, and might it fall, and it cause the injury and the breakdown.
	Put neither finger nor the foreign body in the connector and the space. It causes the injury and the breakdown.
Wet person prohibition	**Do not touch by a wet hand.** It might cause the electric shock and the breakdown.
Attention	**Aged deterioration** The battery terminal and the USB connector might become the loose connections by the vibration and the aged deterioration.
	Note static electricity. There is a possibility of causing destruction by static electricity. Please let the touch static electricity go in the metal etc. to prevent it before touching this machine.
Observing strictly	**Pull out the battery when not using it for a long term.** It might cause the breakdown because of the liquid leakage of the battery.

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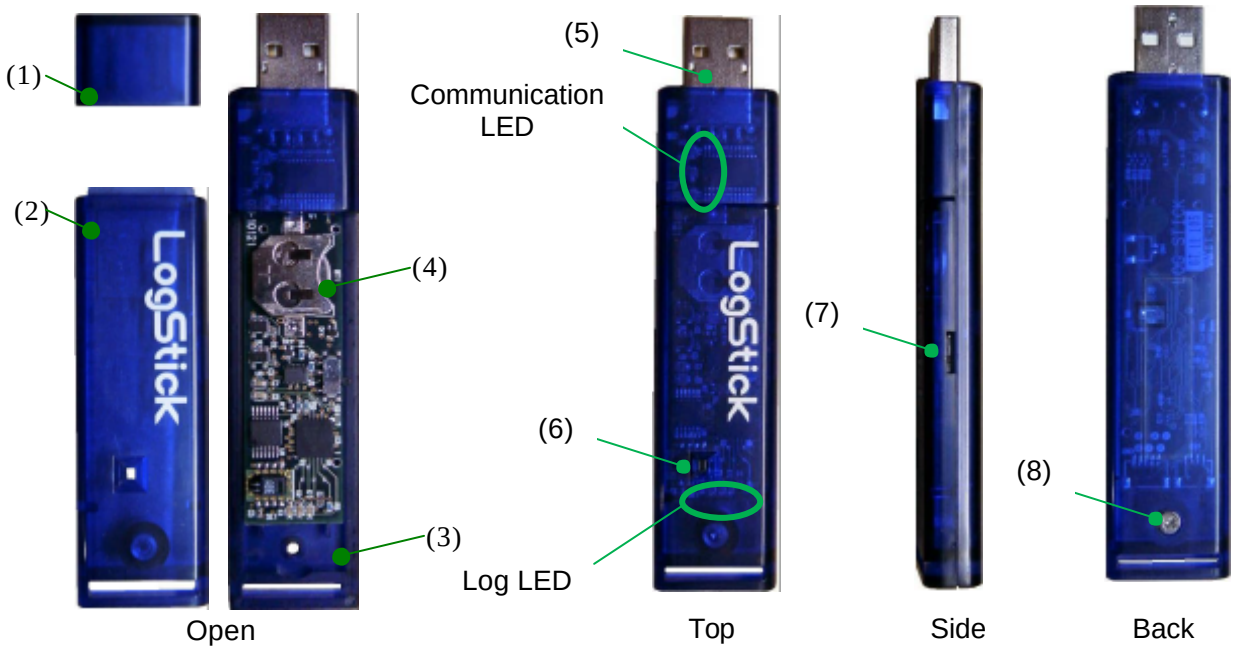
1. General

LS300-TH has built in high accuracy Temperature and Humidity sensor that can record Temperature and Humidity by arbitrarily specified sampling rate. LS300-TH is compact and long recording life time by low power consumption operation by button battery of CR1220. LS300-TH can record date/time and value of Temperature and Humidity simultaneously by clock of LS300-TH. LS300-TH has USB interface, Data transfer can be done by PC of USB interface

2. Configuration of LS300-TH



Name and Remarks

(1) USB connector cover
(2) USB Cover
(3) USB Housing
(4) Button Battery : Please use CR1220
(5) USB connecter : USB interface
(6) Temperature/ Humidity Sensor : Please do not cover at around sensor area
(7) Suspended Switch : Suspended mode if Slide switch to USB connector side
(8) Screw for battery : M2 x 6 (countersunk screw)

Communication LED : It will be power on when communicate with PC

Log LED : Green Recording
: Red Low battery alarm(Blinking 5sec interval)

Attention

Stop the recording when sensing a low battery. All the software configuration set will initialize when change the battery. Please Plug into LS300-TH to PC then configuration again when you will start the recording again.

3. Preparation before use for LS300-TH

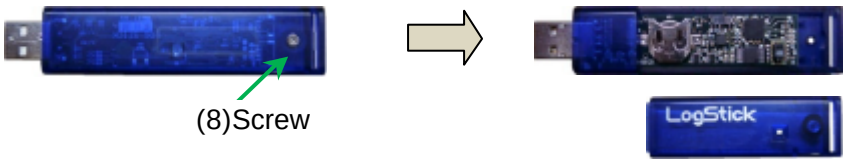
The following preparations are necessary before use for LS300-TH

(1) Change the battery
(2) Driver installation
(3) Acquire the COM Port Number
(4) Application software installation

3.1. Change the battery

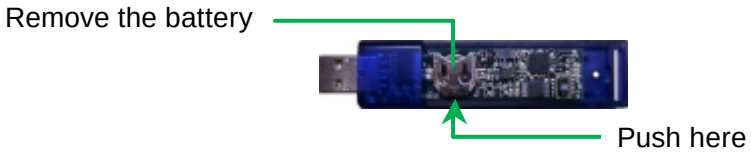
3.1.1. **Step 1:** Remove the cover (2)

Please use No.1 of plus screw driver then remove the (2) cover. Do not missing a screw



3.1.2. **Step 2:** Remove the old battery

Please use insulated material as plastic/wooden toothpicks

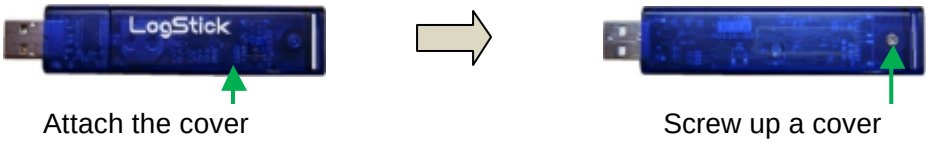


3.1.3. **Step 3:** Insert the new battery

Please insert the new battery, Upper side (+), Bottom side (-)

3.1.4. **Step4:** Please do a screw stopper

Please do not screw strongly. Cover will be damaged



Attention

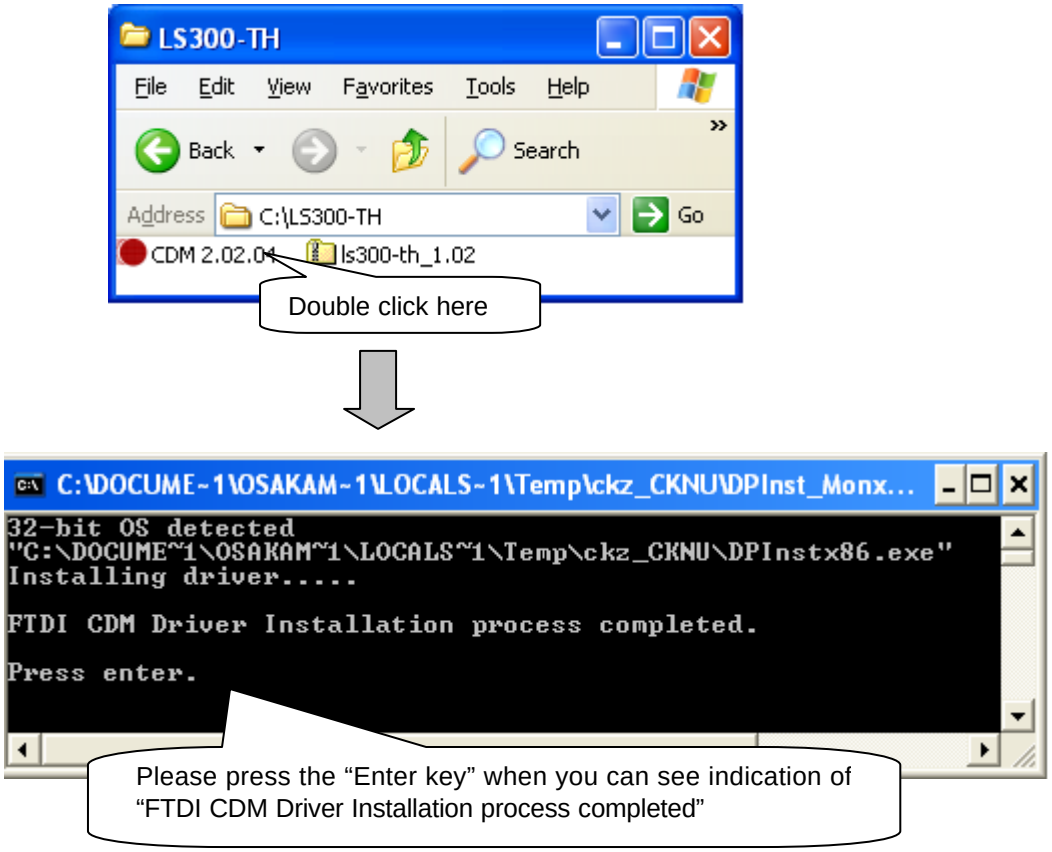
Pre-Installed battery is test purpose. Please change to new battery before starting a recording.
Data is not missing by battery change. We recommended that please back up a data before change the battery.

3.2. Driver installation

Recommended PC specification	
OS:	Windows XP(more than SP2), Windows Vista
CPU:	More than 500Mhz (Intel Pentium/Celeron family or compatible CPU)
Memory:	More then 256MB
Hard disk drive:	More 10MB space
Display size:	More than 1024 x 748

PC will recognize LS300-TH as COM port due to built in a convertor chip of RS232C to USB. It must be install software driver of RS232C to USB convertor chip before connection between LS300-TH and PC

Please execute a software driver install program
Execute diver software of “CDM 2.02.04.exe”. Please press the “Enter key” when you can see display of “FTDI CDM Driver Installation process completed”



3.3. Acquire the COM Port Number

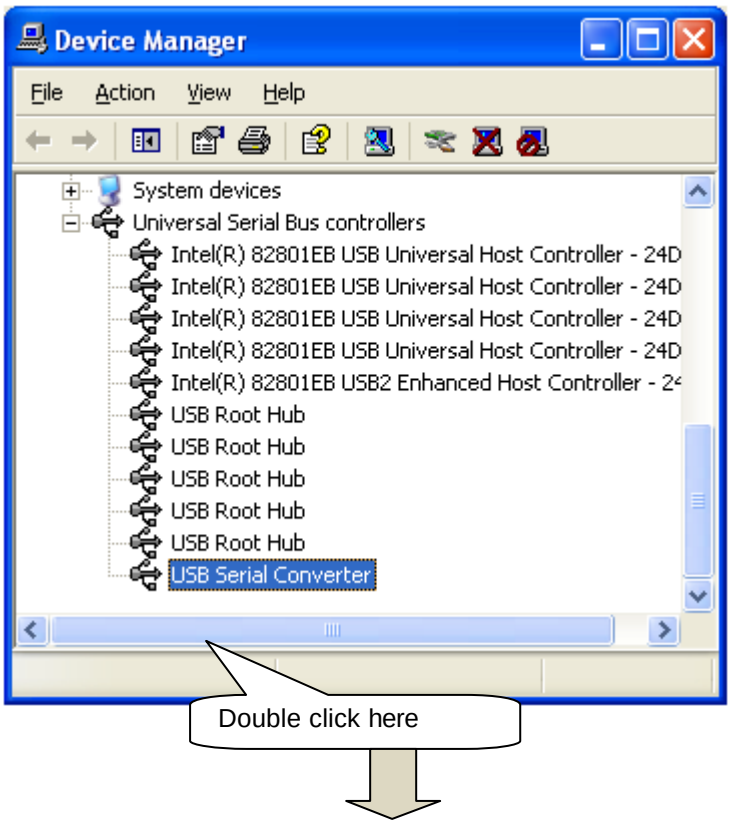
3.3.1. Please plug into LS300-TH to PC

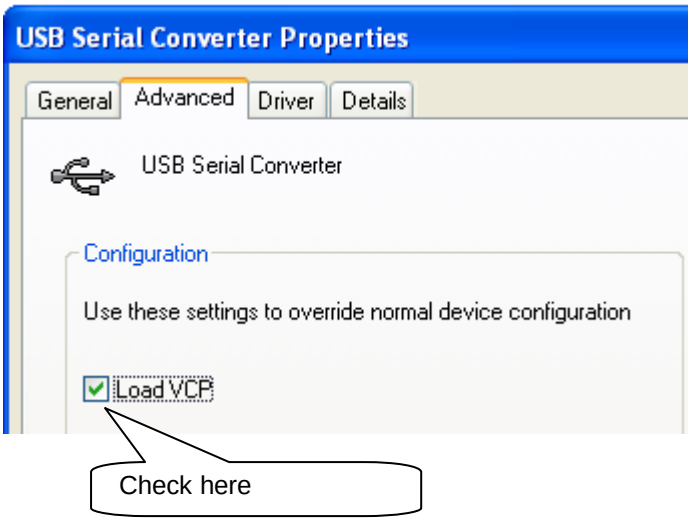
After plug into PC, please check to “Device Manager” – “USB (Universal Serial Bus) controller” Then, open a property of USB serial convertor. Please check a check box of “Load VCP” on tab of “Advanced”

Please see flowing instruction how to indicate a Device manager

<For Windows XP>
Start button – Control Panel – System – Hardware – Device Manager

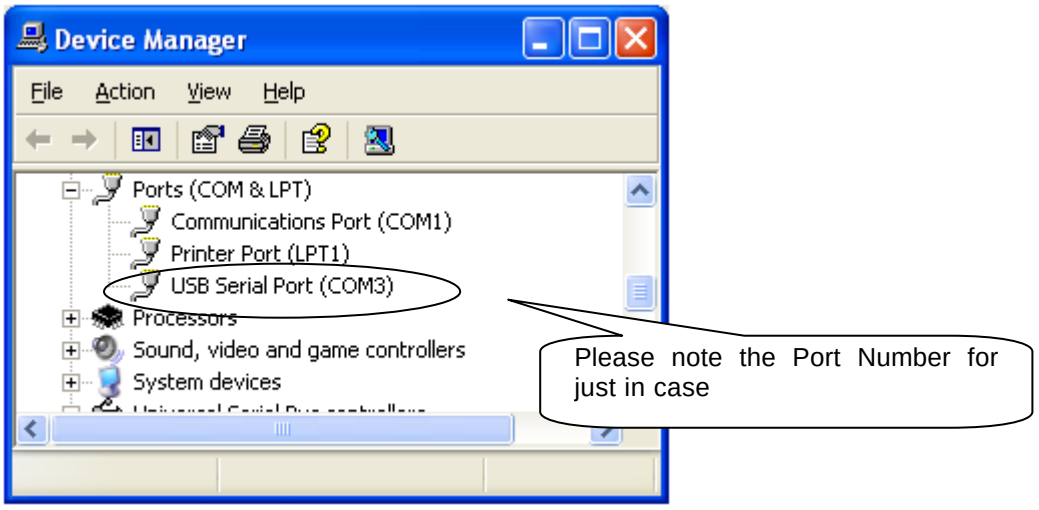
<For Windows Vista>
Start button – Control Panel – Device Manager


Device Manager
File Action View Help
System devices
Universal Serial Bus controllers
Intel(R) 82801EB USB Universal Host Controller - 24D
Intel(R) 82801EB USB Universal Host Controller - 24D
Intel(R) 82801EB USB Universal Host Controller - 24D
Intel(R) 82801EB USB Universal Host Controller - 24D
Intel(R) 82801EB USB2 Enhanced Host Controller - 2
USB Root Hub
USB Root Hub
USB Root Hub
USB Root Hub
USB Root Hub
USB Serial Converter
Double click here



3.3.2. Remove the LS300-TH from PC once

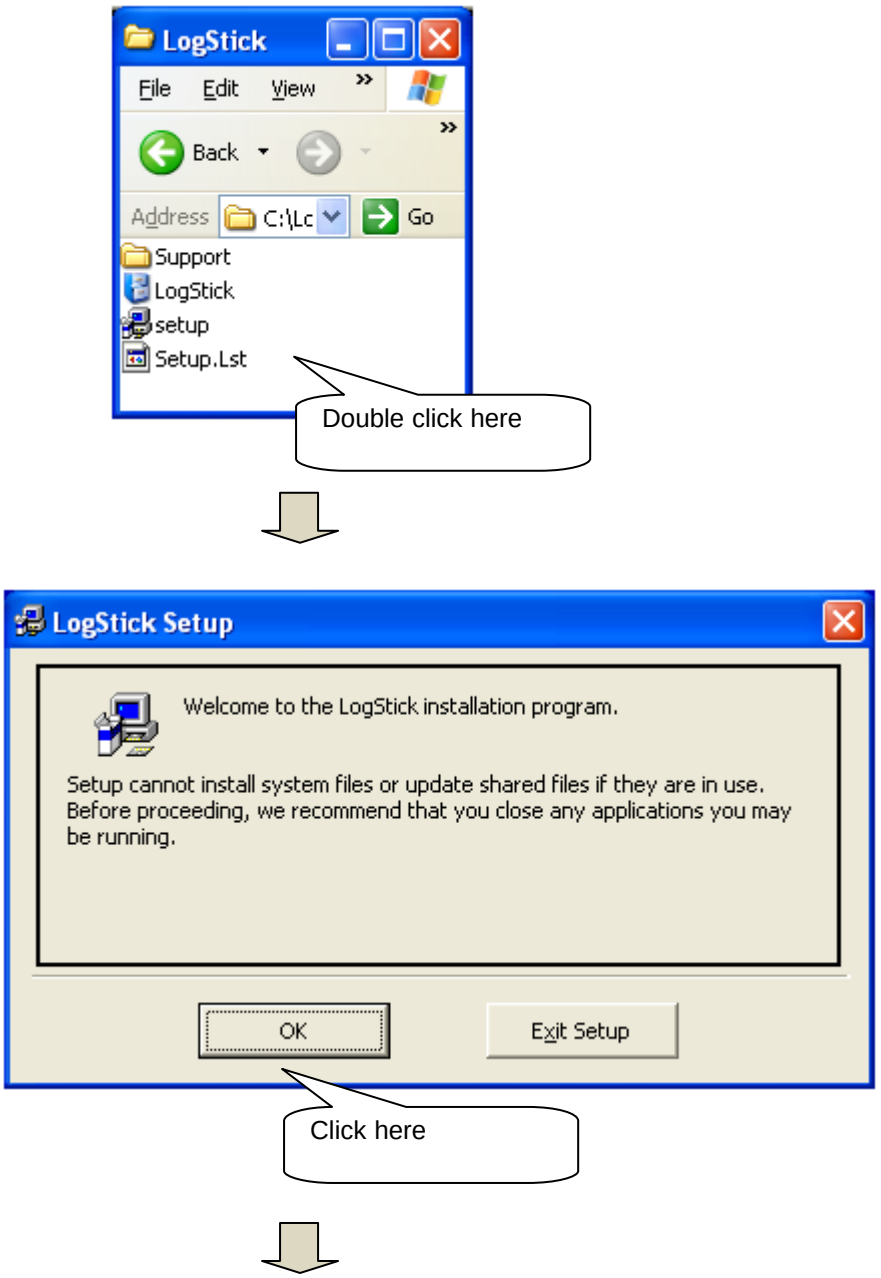
3.3.3. Please plug into LS300-TH to PC again
Please confirm indication of USB serial port (COMxx) in Device Manager of Port(COM and LPT)
Please note Port Number for just in case.

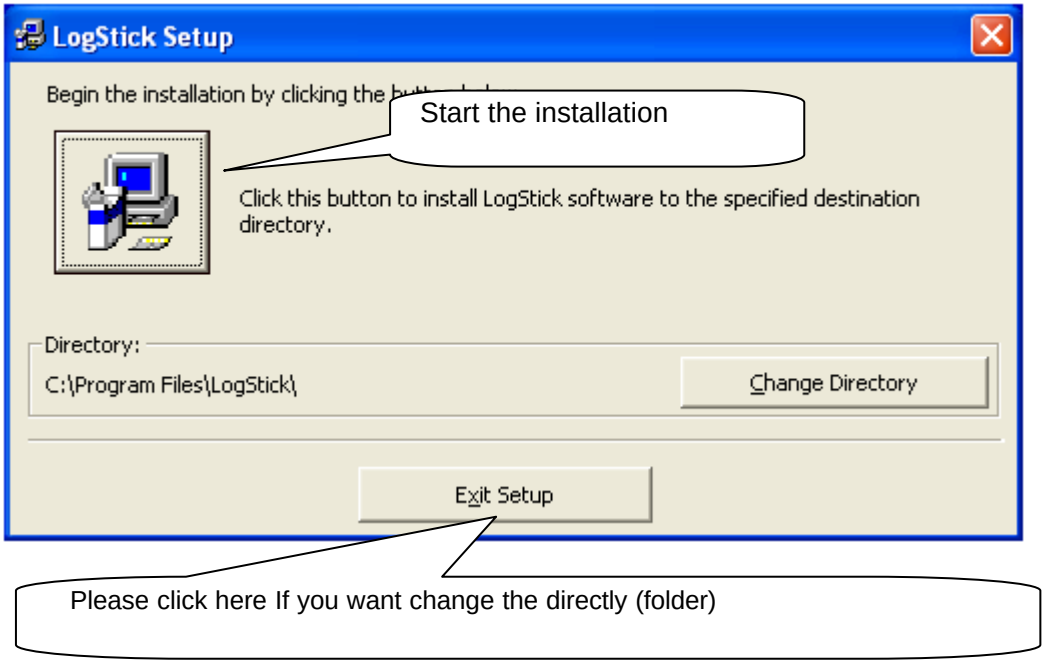


3.3.4. Installation of Application Software

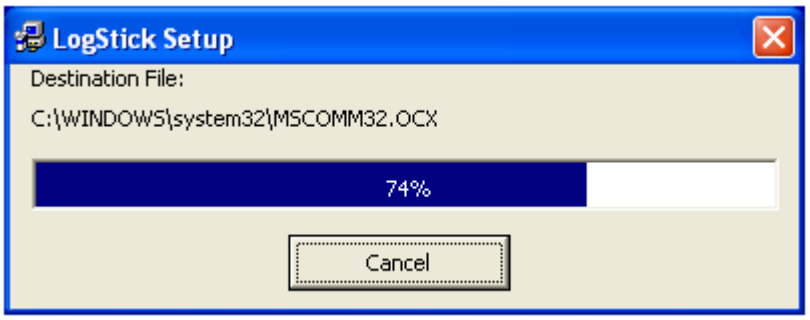
Operation of LS300-TH is controlled by application software. Please follow instruction how to setup for installation of application software.

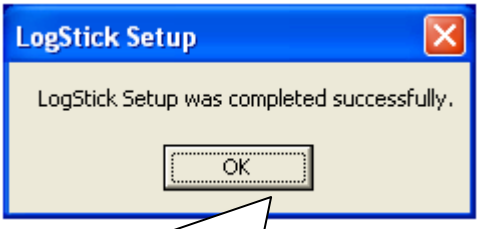
Please execute “setup exe” as shown below,





Please click here If you want change the directly (folder)





Please click “OK” when installation completed

4. How to operate LS300-TH

Please follow instruction as 1st: Start Button 2nd: All program 3rd: Chose a LogStick

4.1. Communication

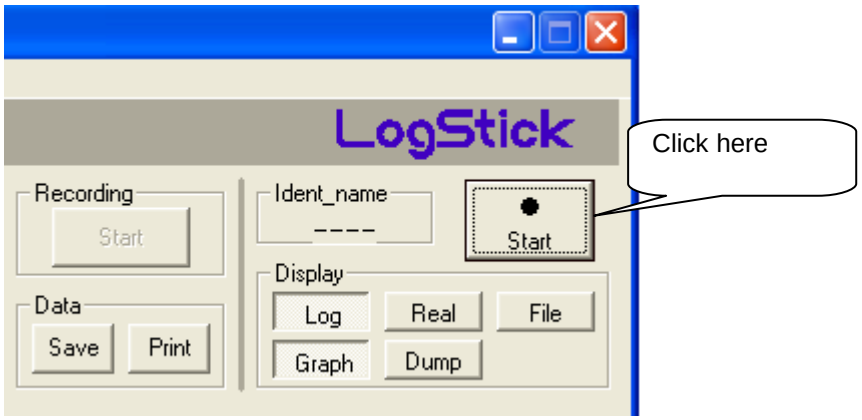
There are two (2) modes as manual and auto communication mode between port number

Attention

Please use manual selection mode if it can not use Automatic mode.

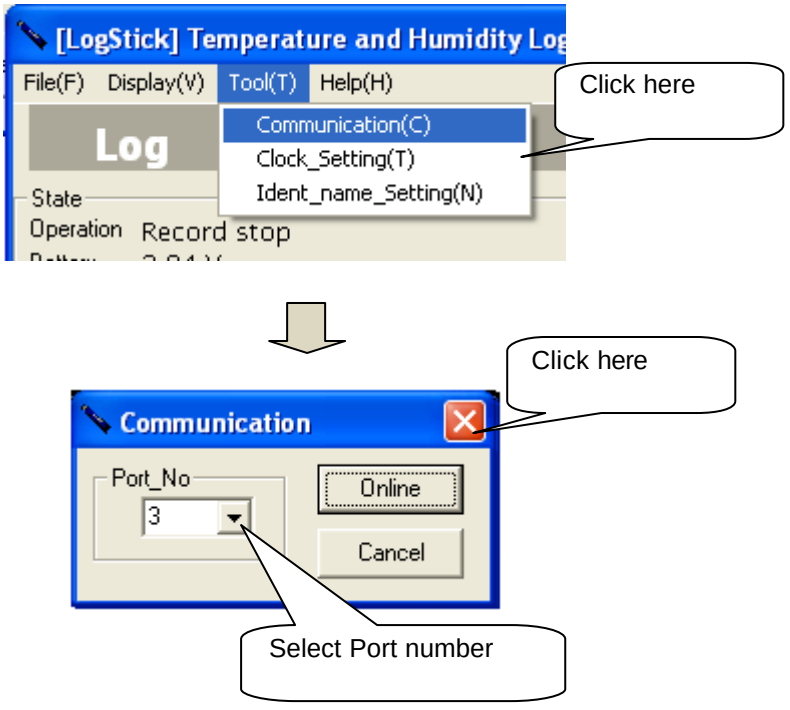
4.1.1. Port number selected by Automatic mode

LS300-TH will select a Port number automatically then start the communication.



4.1.2. .Port number selected by Manual mode

1st : Go to Menu – Tool – "Communication "
2nd: Click "Communication"
3rd: Diplay communication Dialogue,
4th: Select Com port number that you have noted.
5th: Click " Start the Communication"

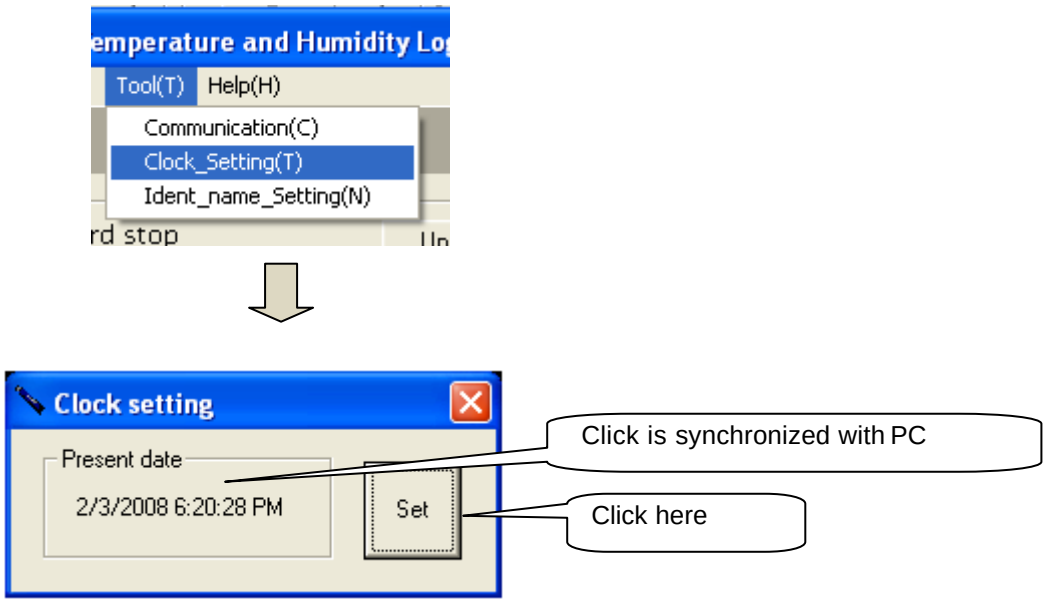


4.2. Clock setup

Attention

No need to clock setup usually, Pre-set the date and time already.

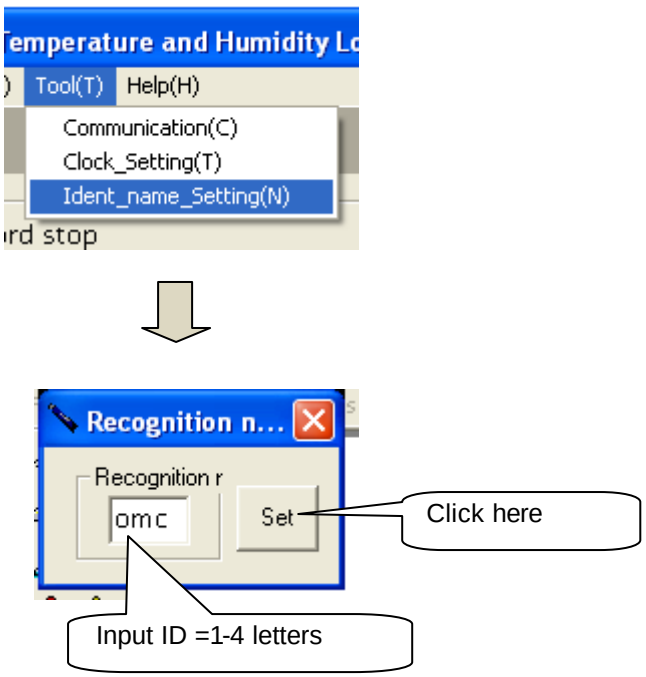
Please go to “Menu bar” – “Tool “ – “Clock setting”



4.2.1. ID setup

Possible to assign unique ID on each measurement that is easy to manage the data if it is done by multi equipments. Unique ID = 1-4 letters

Please go to “Menu bar” – “Tool “ – “Ident_name_setting”



4.3. Log Recording

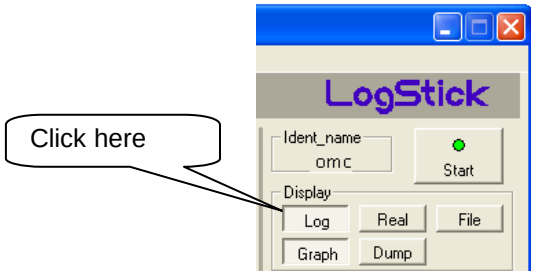
The feature of Log Recording is as follows.

Temperature and Humidity data will record to internal memory of LS300-TH according to programmed sampling rate.

- Setup sampling rate as 2 -59 second, 1- 240 minutes (Pre-set 60 minutes)
- Reserve a data recording date and time in 1 month advance
- Select the recording style as “one time mode” or “loop mode”
- One time mode: Recording will stop when Data will reach to 15,000 points
- Loop mode: Data will excessive the 15,000points , LS300-TH will start over write the data from oldest data, It is possible to recording maximum 60,000 points
- Suspended mode: Slide switch to USB connector side

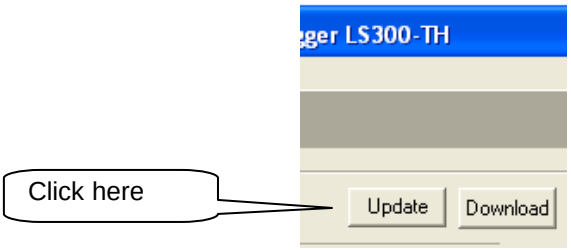
> Attention
>
> The measurement resolution decreases 2 seconds sampling rate.

“Log” will start when click it.



4.3.1. Status display

Present status displays when click to following “Up-Date”



Operation: Present status (Suspend mode, Stop, Recording, Reserved)
Battery: Present voltage
Start date: Start date and time
Date points: Recorded sampling numbers and data
Sampling rate: Present sampling rate
Recording mode: Recording mode (One time or Loop)

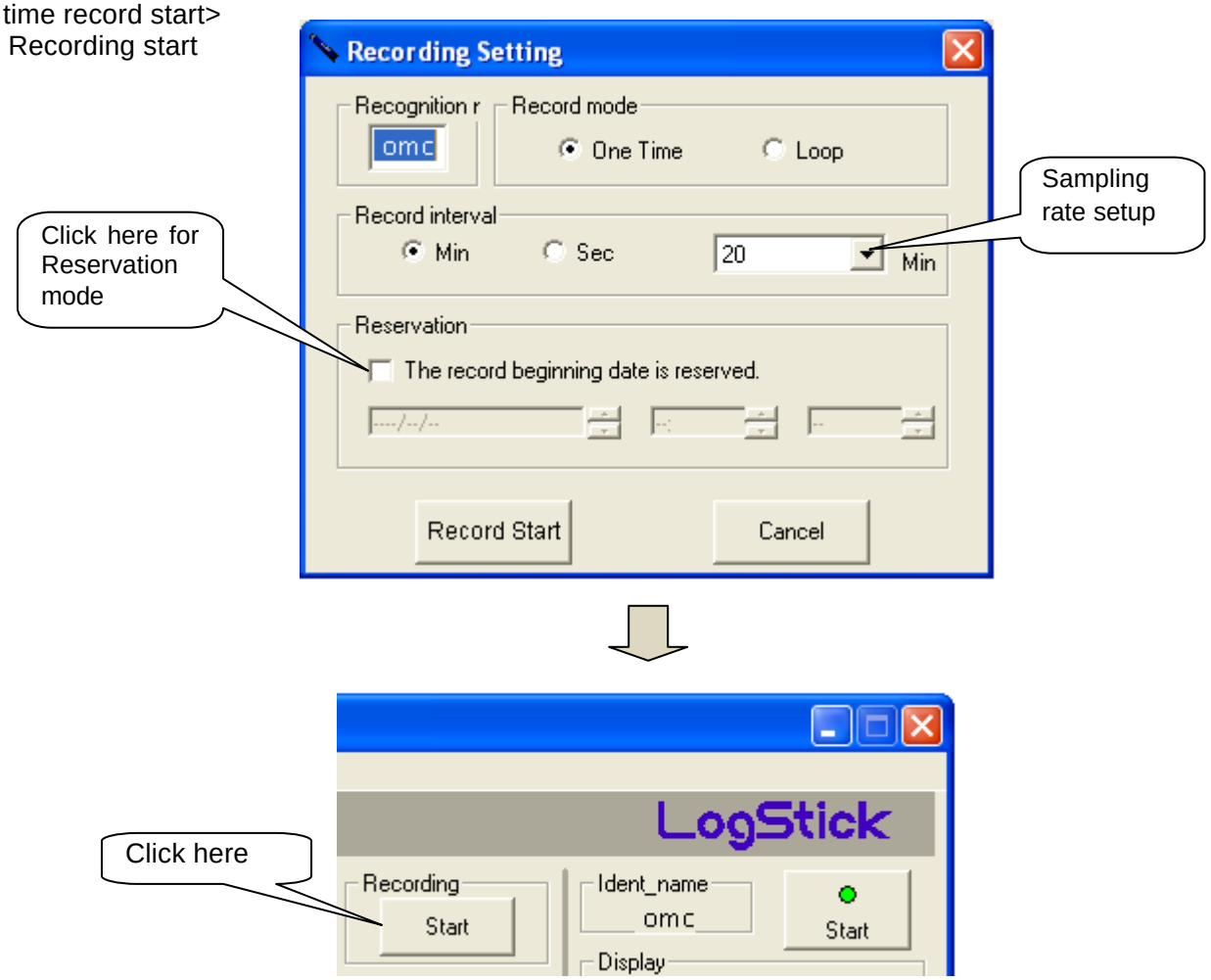
> Attention
>
> Indicated battery voltage is rough guide, Please change the battery before start the long time recording. Logging will stop when voltage of battery will less than 2.5 volts

4.3.2. Start the recording

1st: Press the start button then dialogue menu will display
2nd: Enter ID, Setup Record mode, Setup Sampling rate

<For reservation>
1st : Check to check box for the Reservation mode recording
2nd: Enter the date and time

<For real time record start>
Press the Recording start

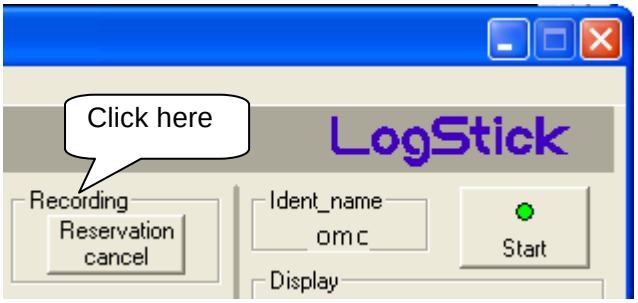


Attention

- All old record will delete when you will press the Recording start (or Registration)
- Please change the battery before starting long time recording
- Recording is starting from click data and time.
- Reservation record is starting from registered data and time

Explanation of each column
<Recording mode>
One time: Recording will stop when Data will reach to 15,000 points
Loop mode: Data will reach to15,000 points , LS300-TH will start over write the data from oldest data,
Record interval: Setup a sampling rate
Reservation: Setup a Start Date and Start Time

4.3.3. Finish the recording /Cancellation of the reservation
Please click Finish or Cancellation

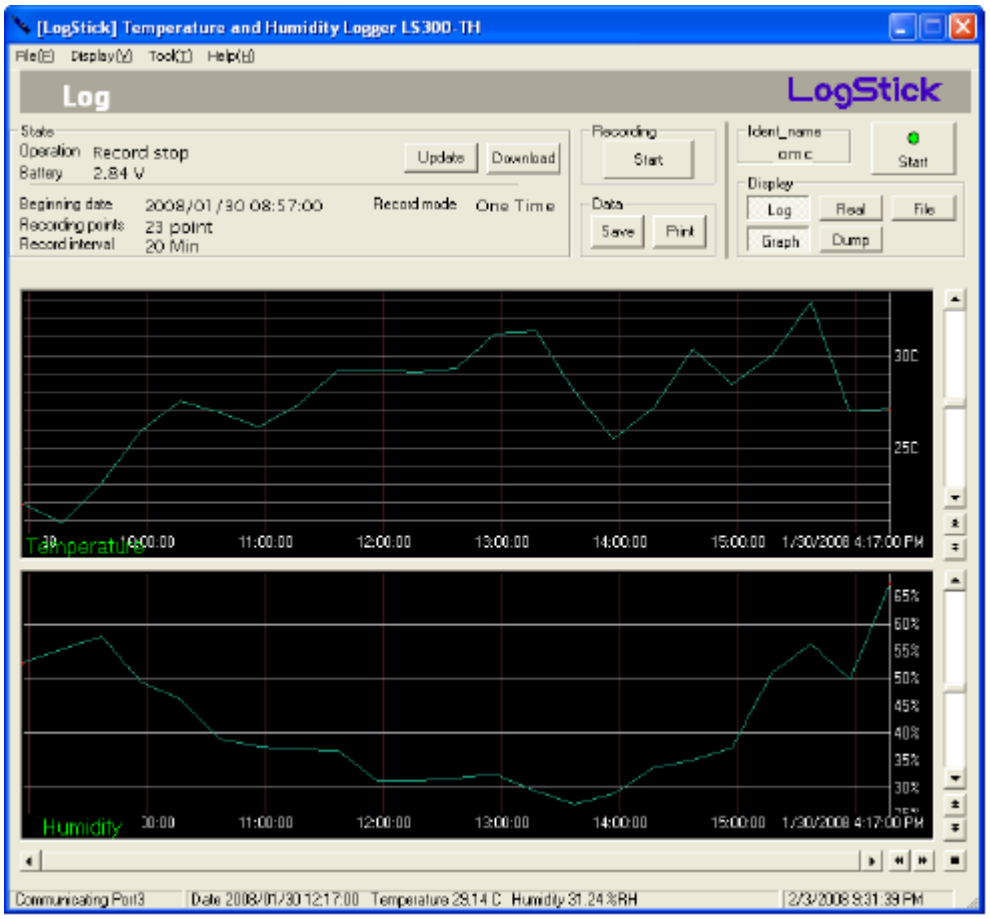


4.3.4. Download

Please click the download button, Recorded data of Temperature and Humidity will transfer to PC. Graph or Dump data is displayed

Attention

Please do not operate other operations while data transfer.

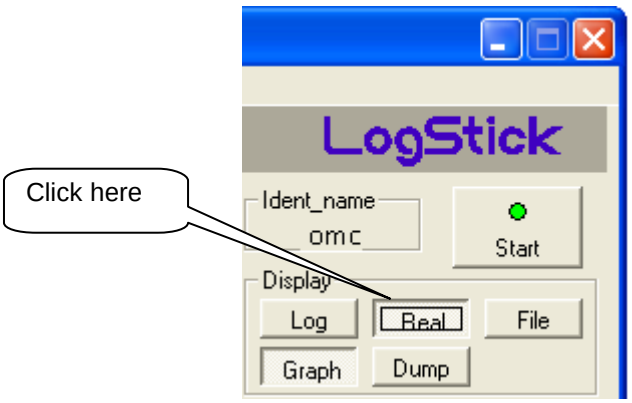


4.4. Real time recording

Please plug in LS300-TH to USB port of PC for real time measurement
It is possible to setup sampling rate as 2-59 second, 1-240 minutes for continuous measurement

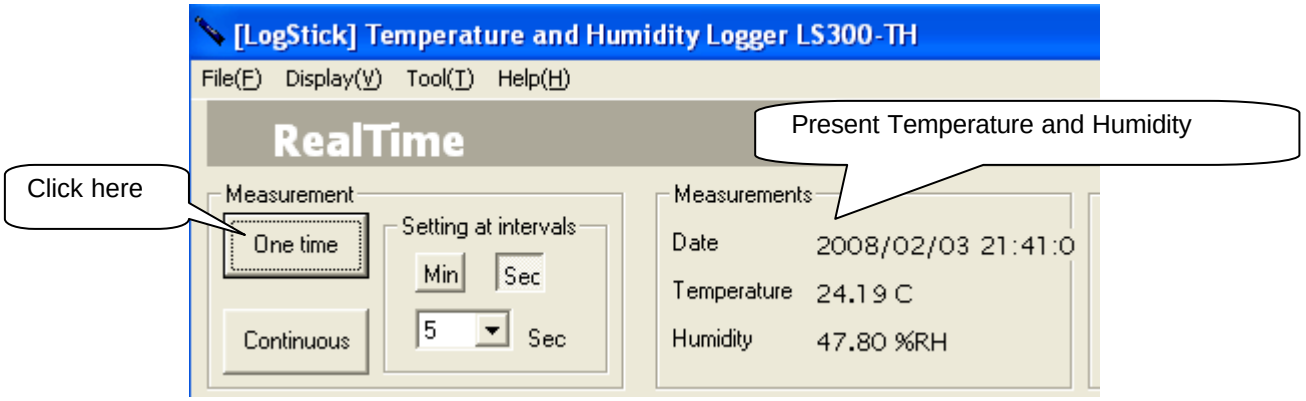
> **Attention**
>
> The measurement resolution decreases 2 seconds sampling rate.

Please display real time when you will start the real time measurement



4.4.1. One time measurement

Present temperature and humidity are measurement while connected with PC
Please click one time, Display will indicate present temperature and humidity



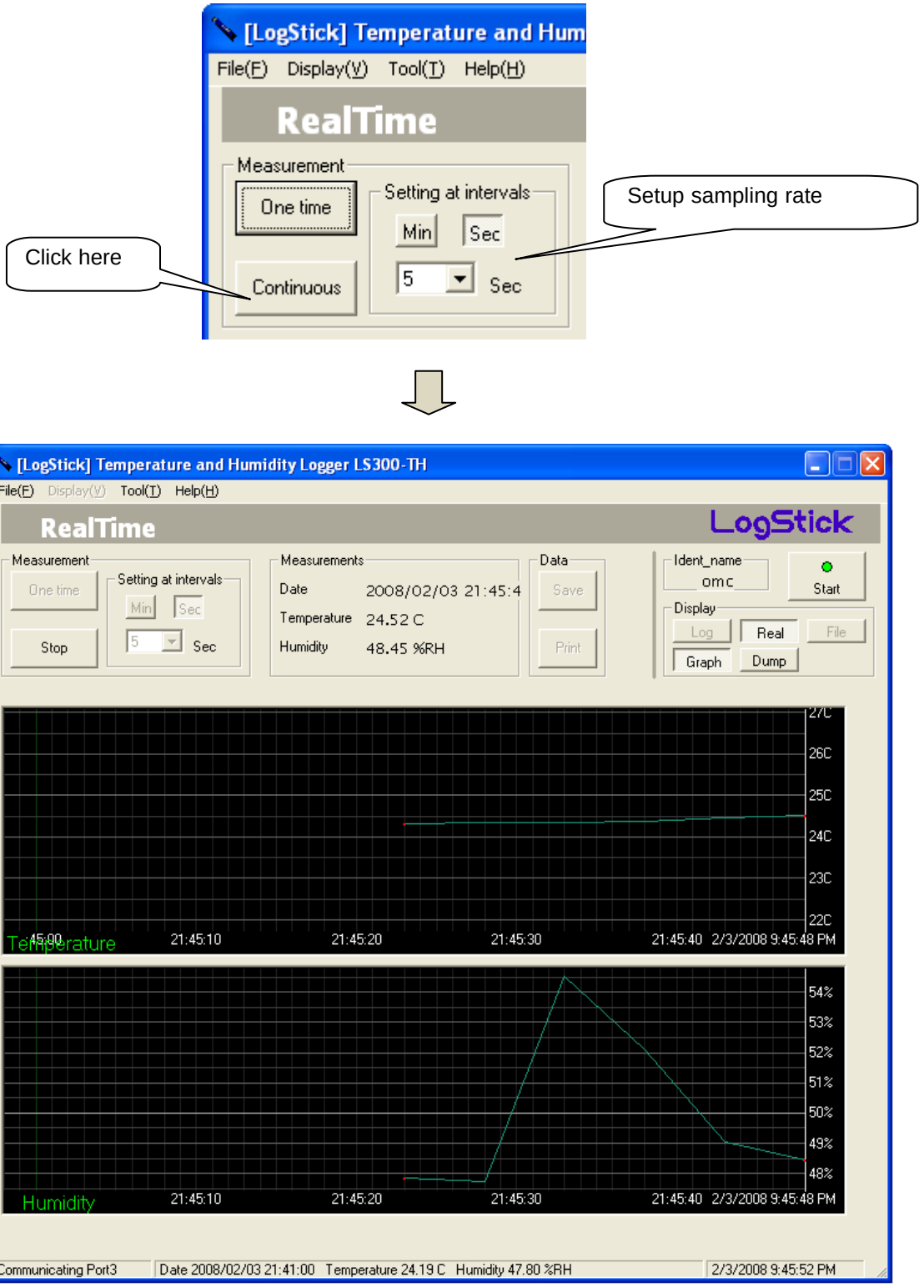
4.4.2. Continuous measurement

Please plug in LS300-TH to USB port of PC for continuous measurement by programmed sampling rate.

1st: Setup a sampling rate

2nd: Press a continuous button for start the measurement

Measurement data is displayed by graph or dump data.



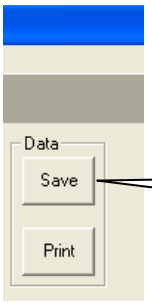
4.5. Data file storage for Temperature and Humidity

Recorded data can storage the file format as CSV format. Please click “Save“. Then, storage dialogue is displayed.

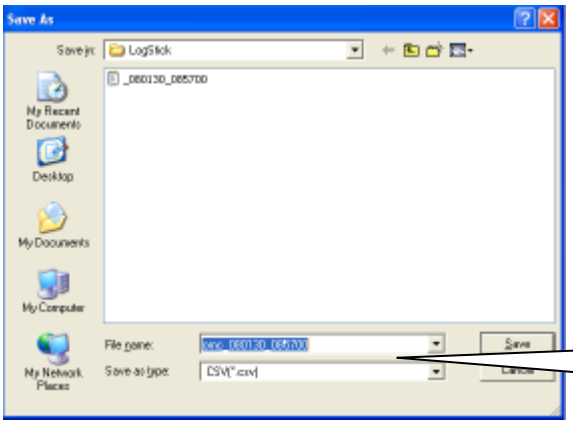
Log

Click here

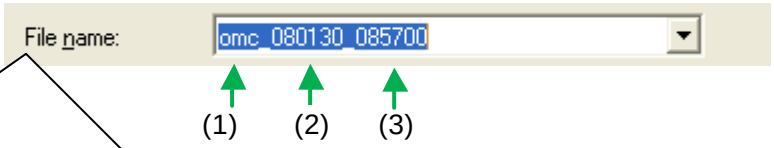
Real Time



Click here

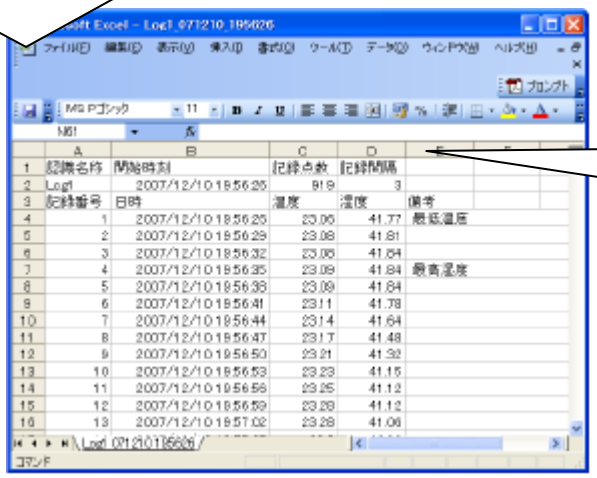


Please specify file name and place



File name indicates ID and recording start Date and time
(1) ID (2) Date(year/month/day) (3) Time (hour/minutes/second)

Storage file can browse by Note Pad, Excel or other spreadsheet software



Sampling rate and time is stored by second (ex. 60 minutes – 3600)

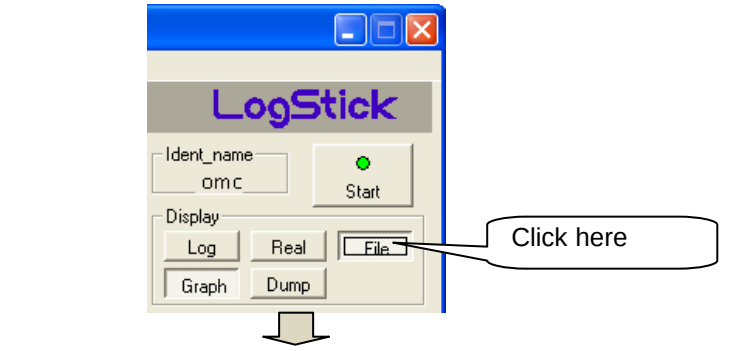
Attention

Notice that Date or Time might be neglected according to type of spreadsheet software, Please change the setting of spreadsheet software. Ex. For excel2003 Format-Cell- Display- time

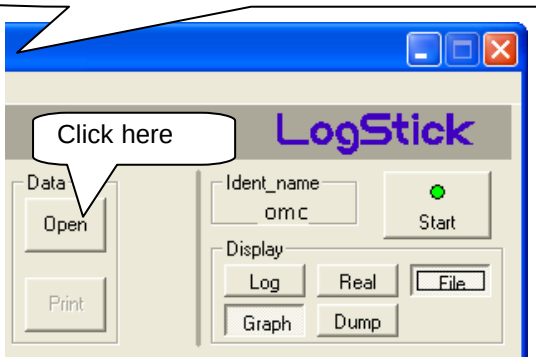
4.6. Read the data from temperature and humidity from stored data file

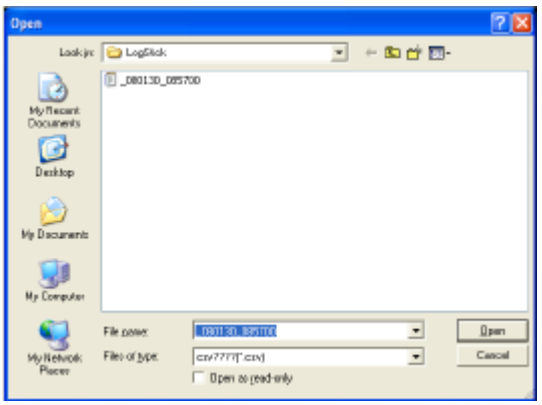
Read the Temperature and Humidity data from the data file,

1st : Display “File “ menu
2nd: Click “File”
3rd : Click “Open”



Please click “Open” and select the File read

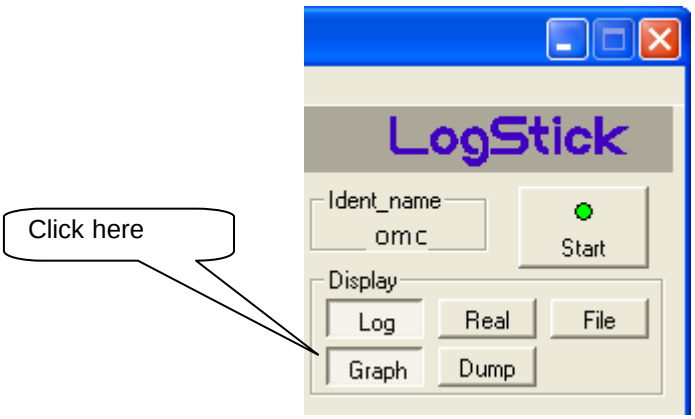


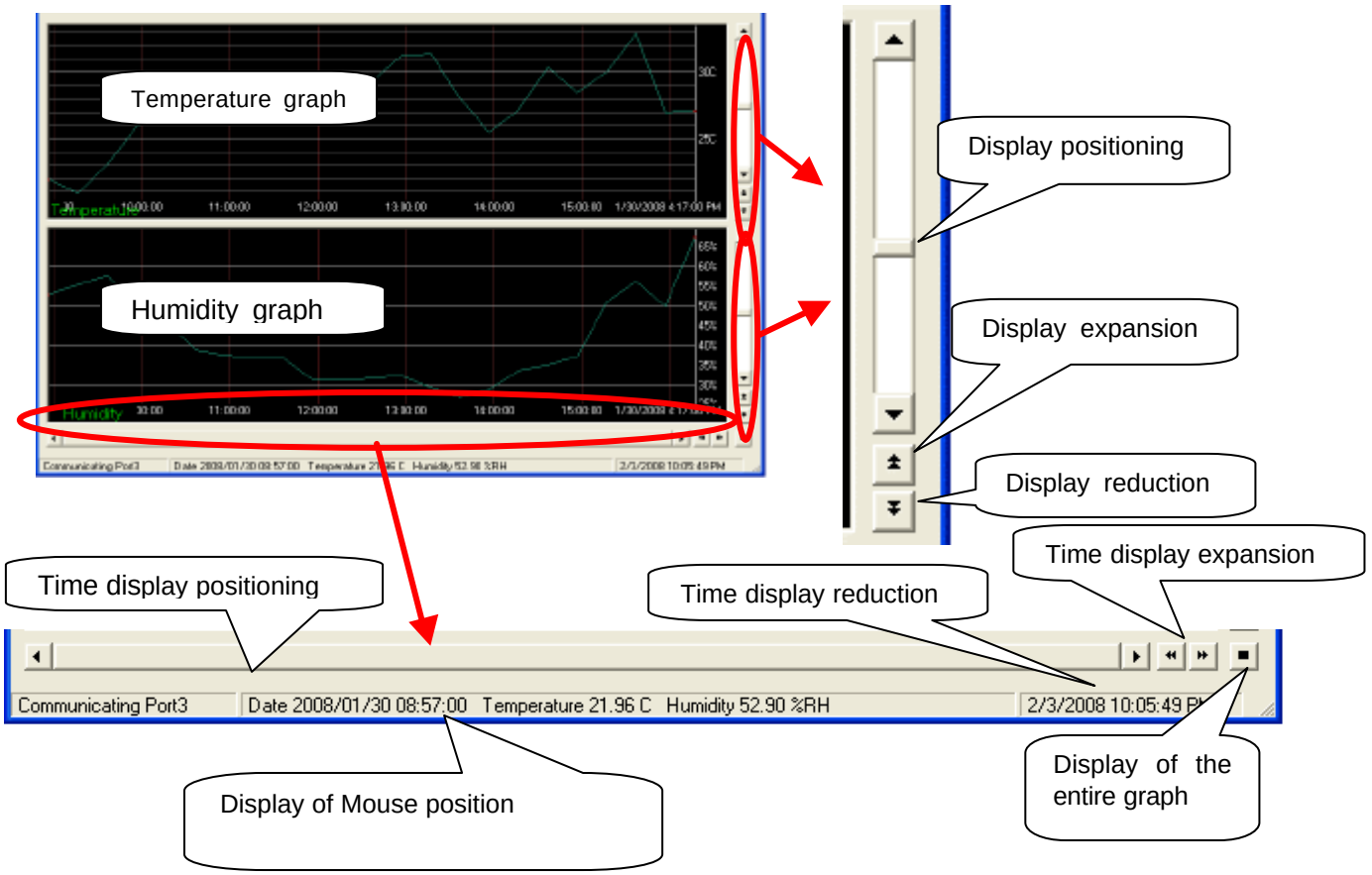


4.7. Graph and Dump Data display

4.7.1. Graph display

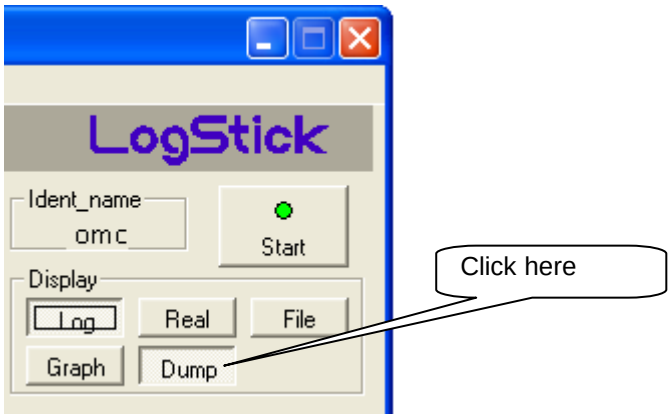
Click “Graph “ for the Graph display

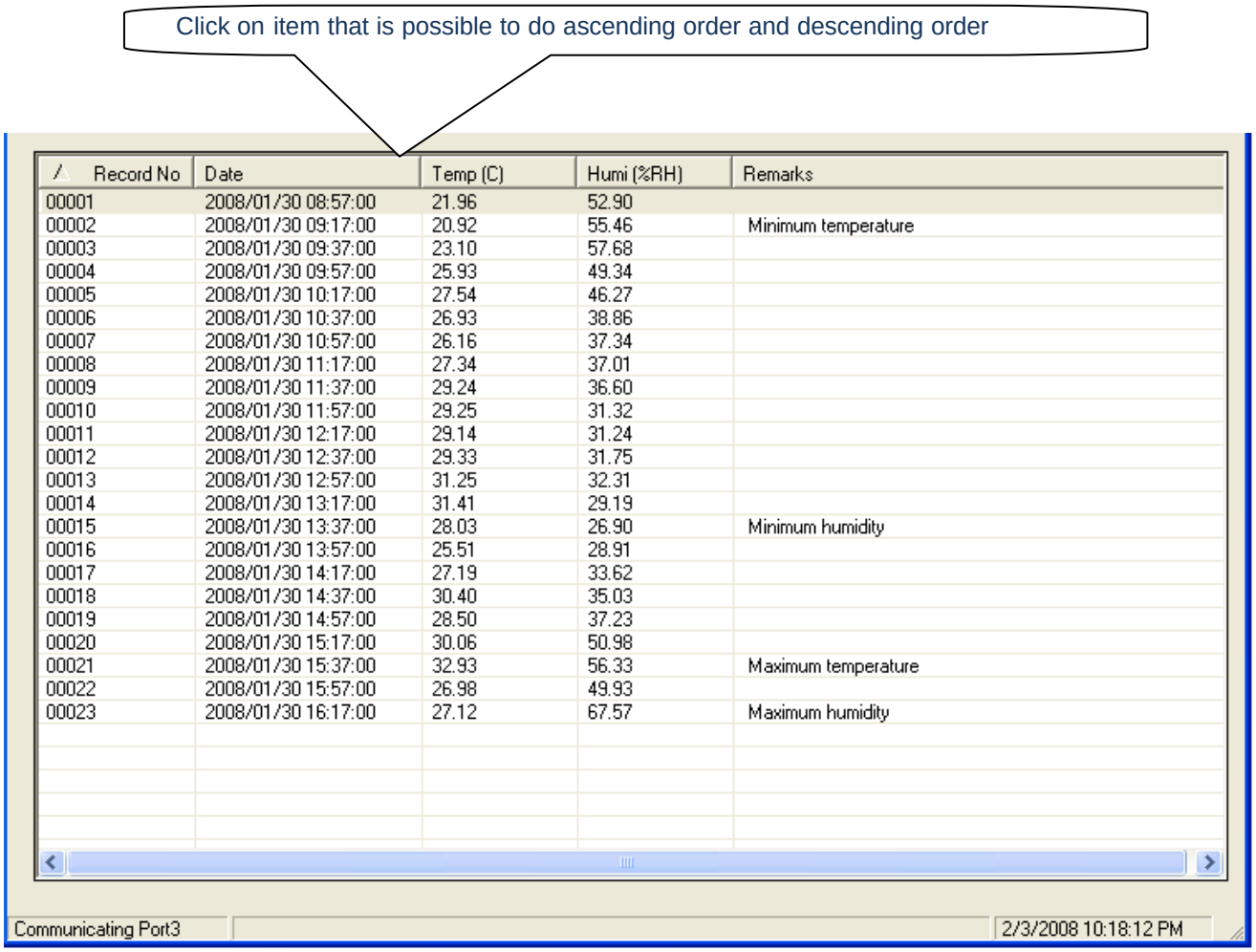




4.7.2. Dump display

Click “ Dump “

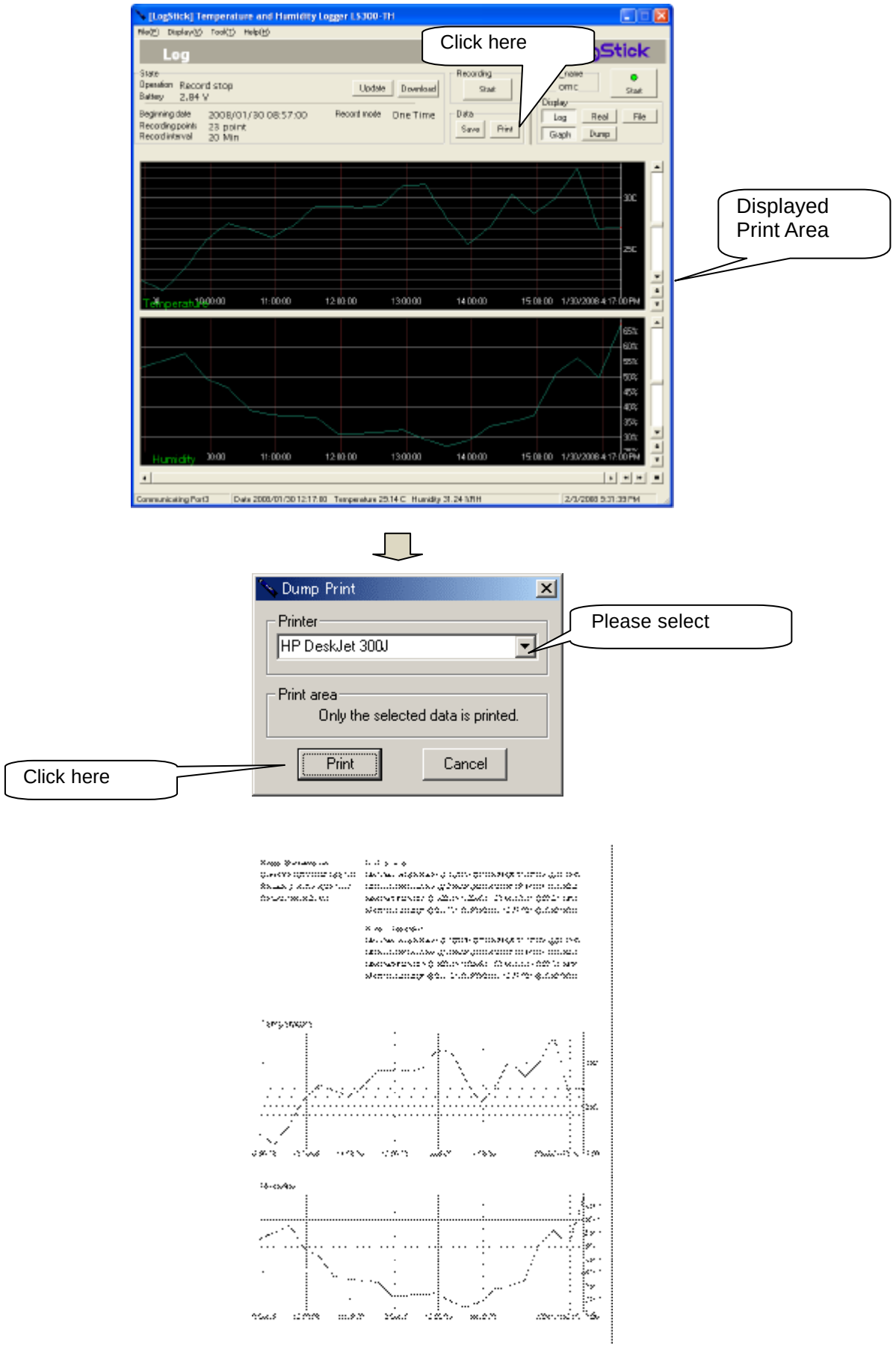




4.8. Print

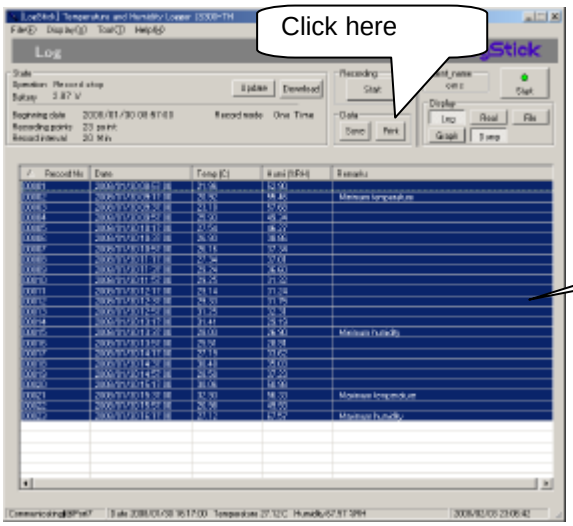
4.8.1. Print of Graph data

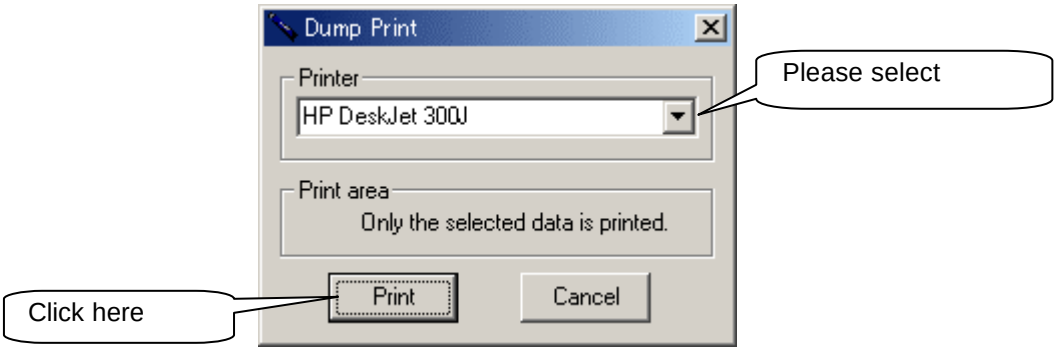
Please specify area of print and click “Print “

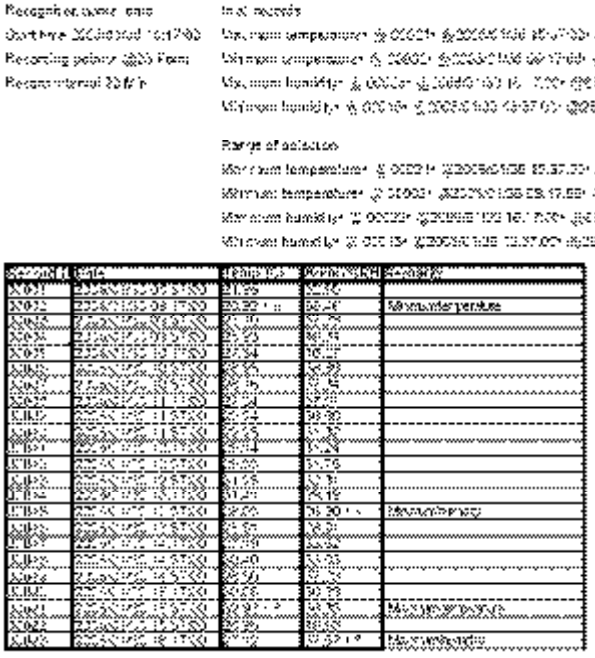


4.8.2. Print for Dump data

Please specify area of print and click “Print “







5. Specification

Product Specification		
Temperature Measurement	Number of Channels	1ch
	Range	-20 deg C - +70 deg C
	Resolution	0.01 deg C(14 bit) more than 3seconds sampling rate
		0.04 deg C(12 bit) 2 seconds sampling rate
	Accuracy	±0.8 deg C(at 25decC) **Fig1**
Humidity Measurement	Number of Channels	1ch
	Range	5-90%RH
	Resolution	0.03%RH(12bit) more than 3seconds interval
		0.5%RH (8bit) 2 seconds interval
	Accuracy	±4% RH (at 20-80%RH) **Fig2**
Sampling	15,000 samples	
Sampling rate	2 second -59 second (by 1 second) 1minutes - 240 minutes (by 1 minutes)	
Interface	USB	
Clock	Includes	
Battery	CR-1220(Built-in) Replaceable	
Battery Life	1 year(60 minutes sampling rate)	
Dimension	100mm(W) x 10mm(H) x21mm(D)	
Weight	20 grams(w/o battery)	
Application Software	Web Download(Free)	
Applicable OS	Windows XP(more than SP2), Windows Vista	
Accessories	Built in Battery is test purpose only Bag for storage Warranty card	

Fig1

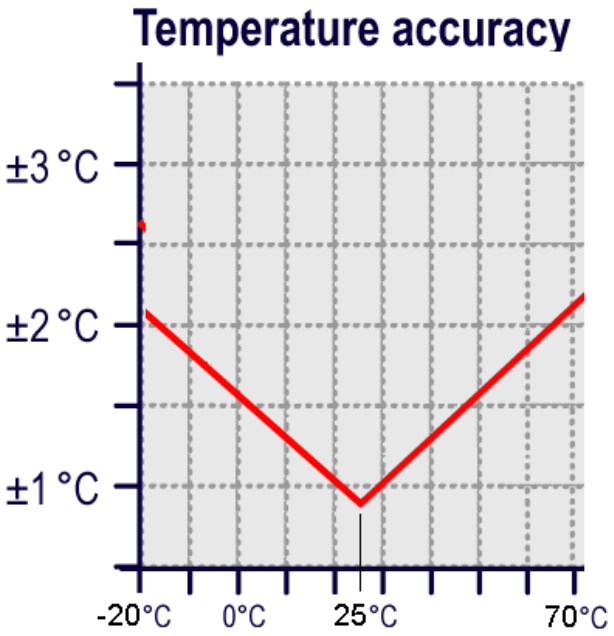
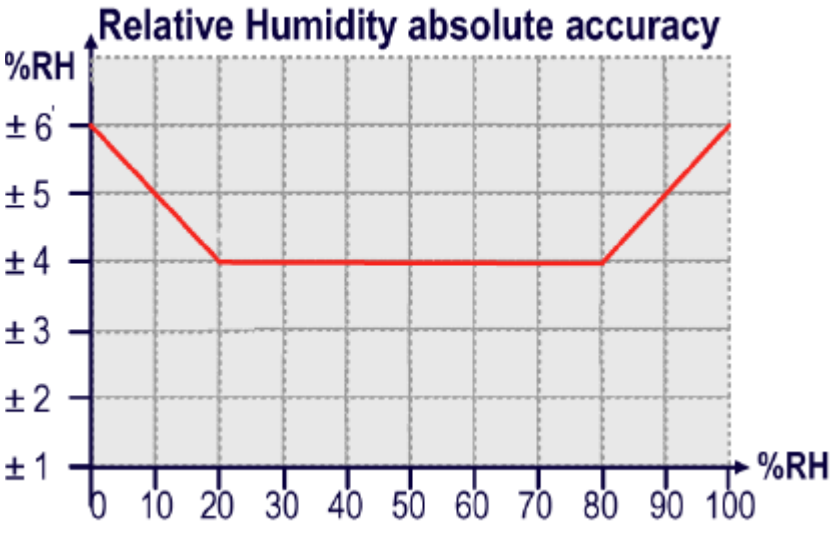


Fig2



<Contact>

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